

FIG. 1

1	5	10	
ATG GCT CCA ATG ACT CAG ACT ACT TCT CTT AAG ACT TCT			
Met Ala Pro Met Thr Gln Thr Thr Ser Leu Lys Thr Ser			
15	20	25	
TGG GTT AAC TGC TCT AAC ATG ATC GAT GAA ATT ATA ACA			
Trp Val Asn Cys Ser Asn Met Ile Asp Glu Ile Ile Thr			
30	35		
CAC TTA AAG CAG CCA CCT TTG CCT TTG CTG GAC TTC AAC			
His Leu Lys Gln Pro Pro Leu Pro Leu Leu Asp Phe Asn			
40	45	50	
AAC CTC AAT GGG GAA GAC CAA GAC ATT CTG ATG GAA AAT			
Asn Leu Asn Gly Glu Asp Gln Asp Ile Leu Met Glu Asn			
55	60		
AAC CTT CGA AGG CCA AAC CTG GAG GCA TTC AAC AGG GCT			
Asn Leu Arg Arg Pro Asn Leu Glu Ala Phe Asn Arg Ala			
65	70	75	
GTC AAG AGT TTA CAG AAT GCA TCA GCA ATT GAG AGC ATT			
Val Lys Ser Leu Gln Asn Ala Ser Ala Ile Glu Ser Ile			
80	85	90	
CTT AAA AAT CTC CTG CCA TGT CTG CCC CTG GCC ACG GCC			
Leu Lys Asn Leu Leu Pro Cys Leu Pro Leu Ala Thr Ala			
95	100		
GCA CCC ACG CGA CAT CCA ATC CAT ATC AAG GAC GGT GAC			
Ala Pro Thr Arg His Pro Ile His Ile Lys Asp Gly Asp			
105	110	115	
TGG AAT GAA TTC CGT CGT AAA CTG ACC TTC TAT CTG AAA			
Trp Asn Glu Phe Arg Arg Lys Leu Thr Phe Tyr Leu Lys			
120	125		
ACC TTG GAG AAC GCG CAG GCT CAA CAG ACC ACT CTG TCG			
Thr Leu Glu Asn Ala Gln Ala Gln Gln Thr Thr Leu Ser			
130			
CTA GCG ATC TTT TAA TAA	(SEQ ID NO: 144)		
Leu Ala Ile Phe END END	(SEQ ID NO: 138)		

C  
 l  
 a  
 I  
  
 aa20 ATCGATGAAATCATCACCCACCTGAAGCAGCCACCGCTGCCGCTGGACTTCAACAAC  
 1 -----+-----+-----+-----+-----+-----+-----+ 60  
 IleAspGluIleIleThrHisLeuLysGlnProProLeuProLeuLeuAspPheAsnAsn -

E  
 c  
 o  
 R  
 V  
  
 CTCAATGGTGAAGACCAAGATATCCTGATGGAAATAACCTTCGTCTCGTCCAAACCTCGAG  
 61 -----+-----+-----+-----+-----+-----+-----+ 120  
 LeuAsnGlyGluAspGlnAspIleLeuMetGluAsnAsnLeuArgArgProAsnLeuGlu -

x  
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 GCATTCAACCGTGTGTCAAGTCTCTGCAGAAATGCAT [SEQ ID NO:145]aa70  
 121 -----+-----+-----+-----+-----+-----+ 157  
 AlaPheAsnArgAlaValLysSerLeuGlnAsnAla [SEQ ID NO:146]

Clal to NsiI Replacement Fragment

N H  
 C P  
 O a  
 I I  
 1 CCATGGCTCCAATGACTCAGACTACTTCTCTTAAGACTTCTTGGGTAACTGCTCTAACA 60  
 -----+-----+-----+-----+-----+-----+  
 GGTACCGAGGTTACTGAGTCTGATGAAGAGAATTCTGAAGAACCCAATTGACGAGATTGT  
 MetAlaProMetThrGlnThrThrSerLeuLysThrSerTrpValAsnCysSerAsnMet  
 C  
 l  
 a  
 I  
 61 TGATCGATGAAATTATAACACACTTAAAGCAGCCACCTTTGCCTTTGCTGGACTTCAACA 120  
 -----+-----+-----+-----+-----+-----+  
 ACTAGCTACTTTAATATTGTGTGAATTCGTCGGTGGAACGGAACGACCTGAAGTTGT  
 IleAspGluIleIleThrHisLeuLysGlnProProLeuProLeuLeuAspPheAsnAsn  
 121 ACCTCAATGGGGAAGACCAAGACATTCTGATGGAAAATAACCTTCGAAGGCCAAACCTGG 180  
 -----+-----+-----+-----+-----+-----+  
 TGGAGTTACCCCTTCTGGTTCTGTAAGACTACCTTTTATTGGAAGCTTCCGGTTTGGACC  
 LeuAsnGlyGluAspGlnAspIleLeuMetGluAsnAsnLeuArgArgProAsnLeuGlu  
 N  
 S  
 i  
 I  
 181 AGGCATTCAACAGGGCTGTCAAGAGTTTACAGAATGCATCAGCAATTGAGAGCATTCTTA 240  
 -----+-----+-----+-----+-----+-----+  
 TCCGTAAGTTGTCCCGACAGTTCTCAAATGTCTTACGTAGTCGTAACTCTCGTAAGAAT  
 AlaPheAsnArgAlaValLysSerLeuGlnAsnAlaSerAlaIleGluSerIleLeuLys  
 240 AAAATCTCCTGCCATGTCTGCCCCCTGGCCACGGCCGACCCACGCGACATCCAATCCATA 300  
 -----+-----+-----+-----+-----+-----+  
 TTTTAGAGGACGGTACAGACGGGACCGGTGCCGGCGTGGGTGCGCTGTAGGTTAGGTAT  
 AsnLeuLeuProCysLeuProLeuAlaThrAlaAlaProThrArgHisProIleHisIle

E  
C  
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R  
I

301 TCAAGGACGGTGACTGGAATGAATTCCGTCGTAAACTGACCTTCTATCTGAAAACCTTGG  
-----+-----+-----+-----+-----+-----+ 360  
AGTTCCTGCCACTGACCTTACTTAAGGCAGCATTTGACTGGAAGATAGACTTTTGGAAACC  
  
LysAspGlyAspTrpAsnGluPheArgArgLysLeuThrPheTyrLeuLysThrLeuGlu

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361 AGAACGCGCAGGCTCAACAGACCACTCTGTCGCTAGCGATCTTTTAATAAGCTT  
-----+-----+-----+-----+-----+-----+ 414  
TCTTGCGCGTCCGAGTTGTCTGGTGAGACAGCGATCGCTAGAAAATTATTCGAA  
  
AsnAlaGlnAlaGlnGlnThrThrLeuSerLeuAlaIlePheEndEnd

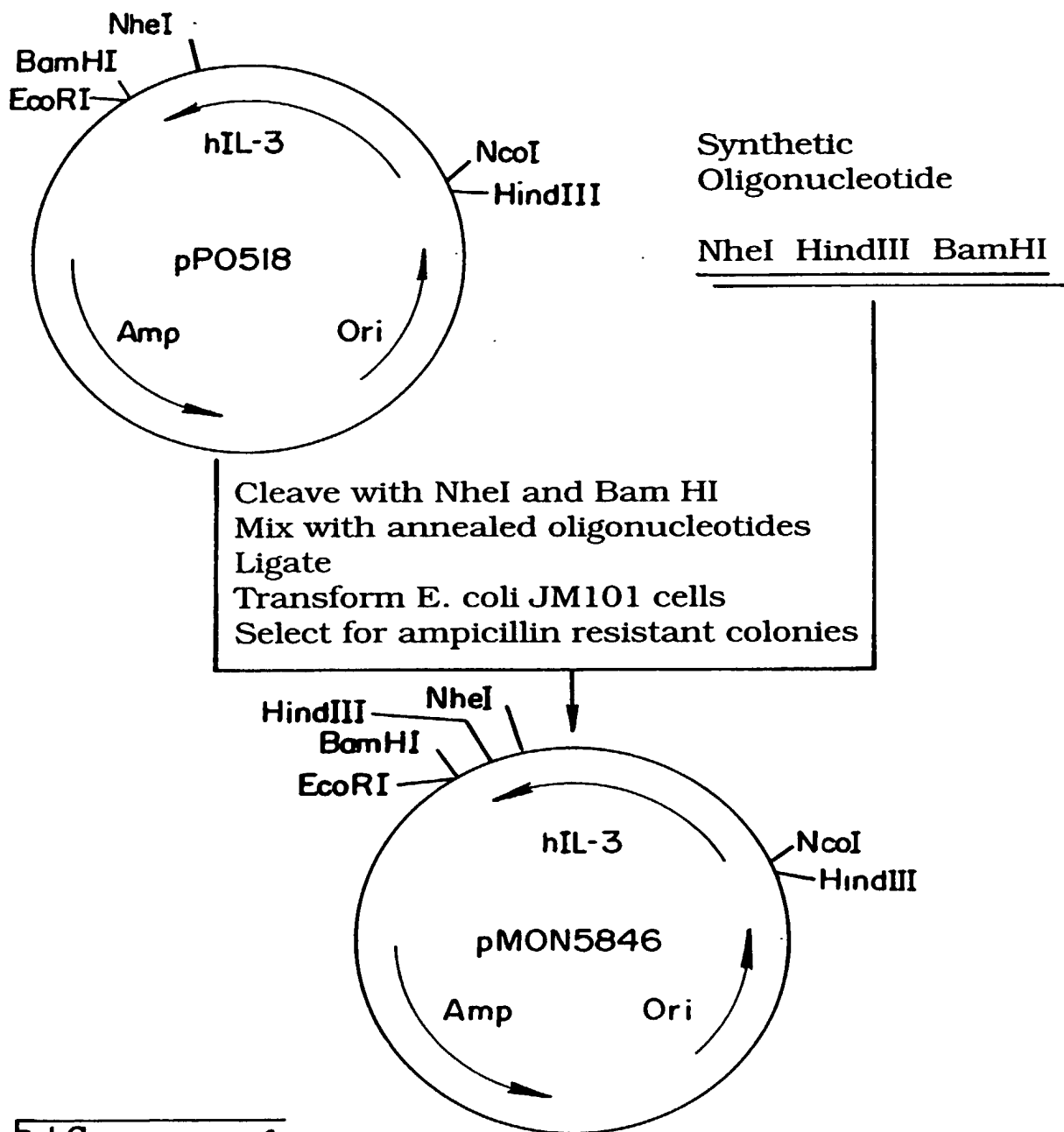


Fig- 4

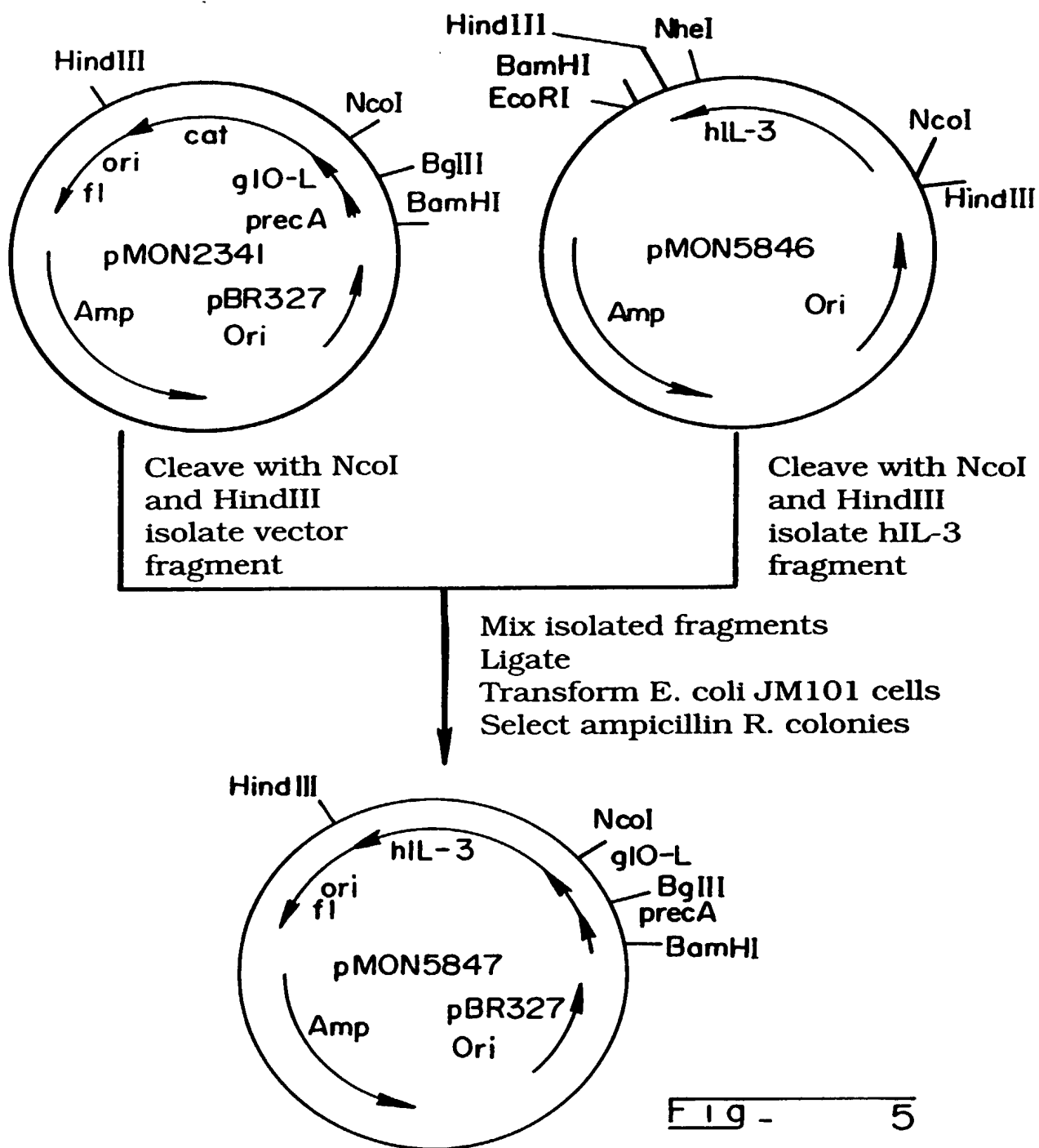
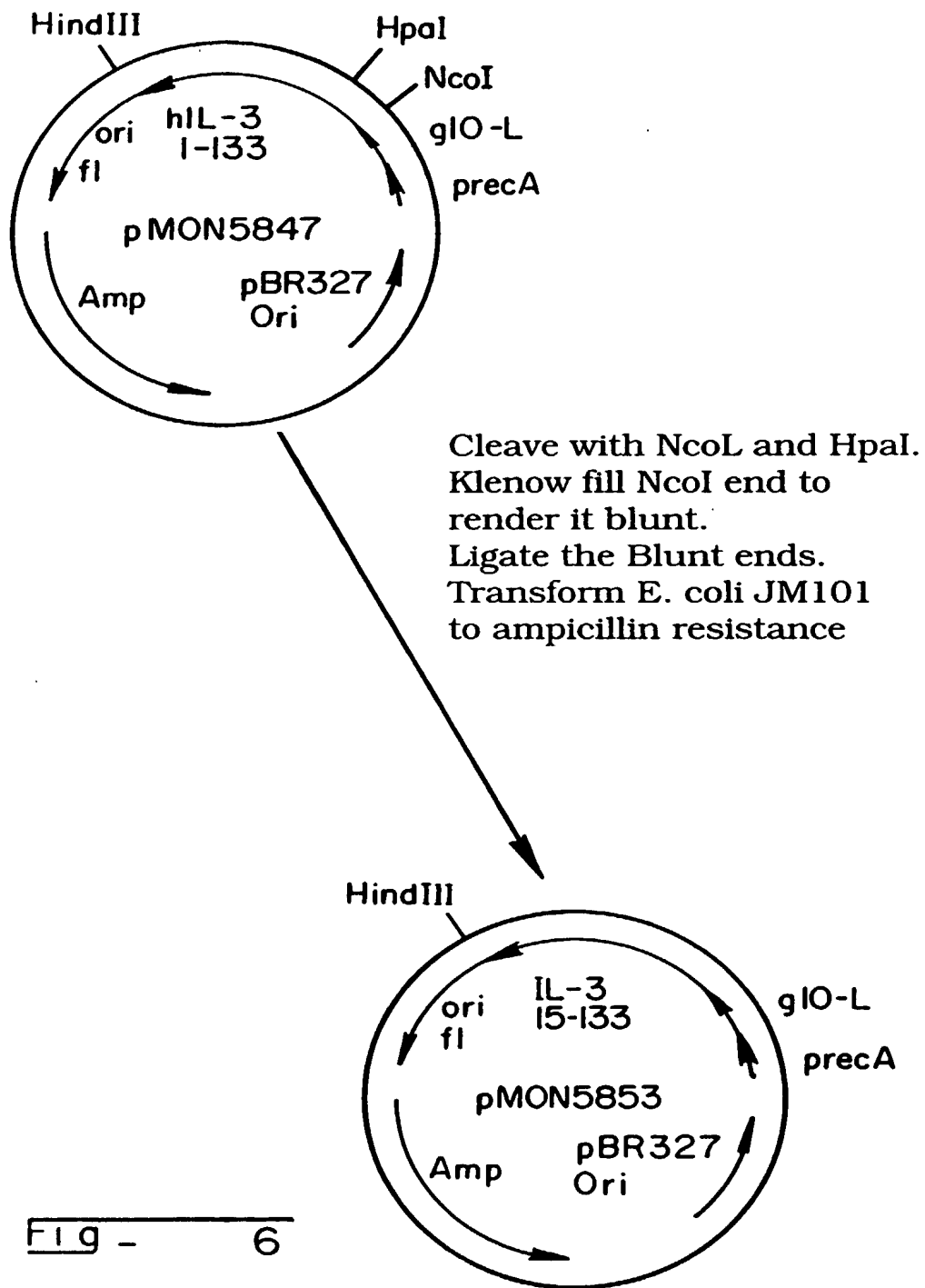
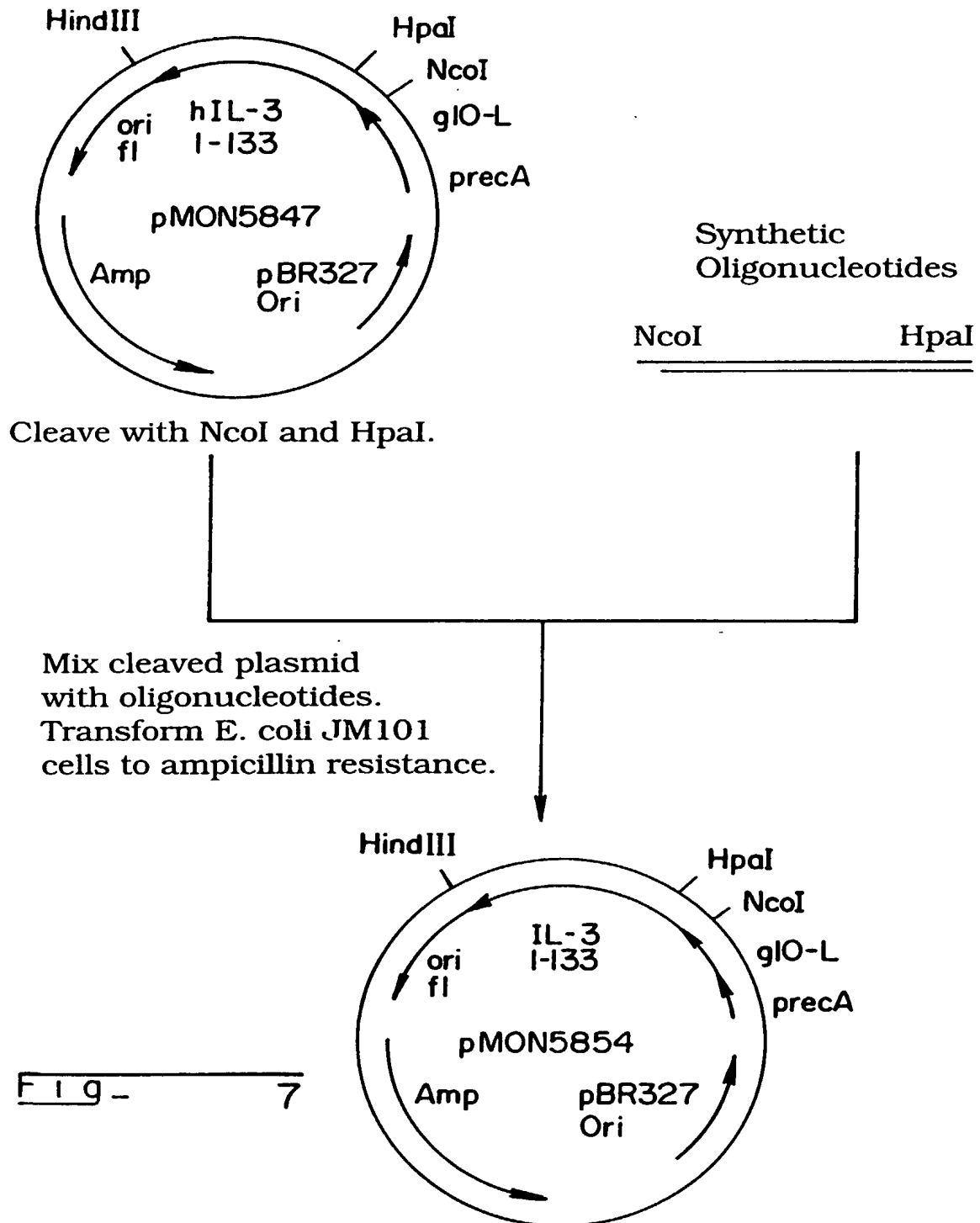


Fig - 5





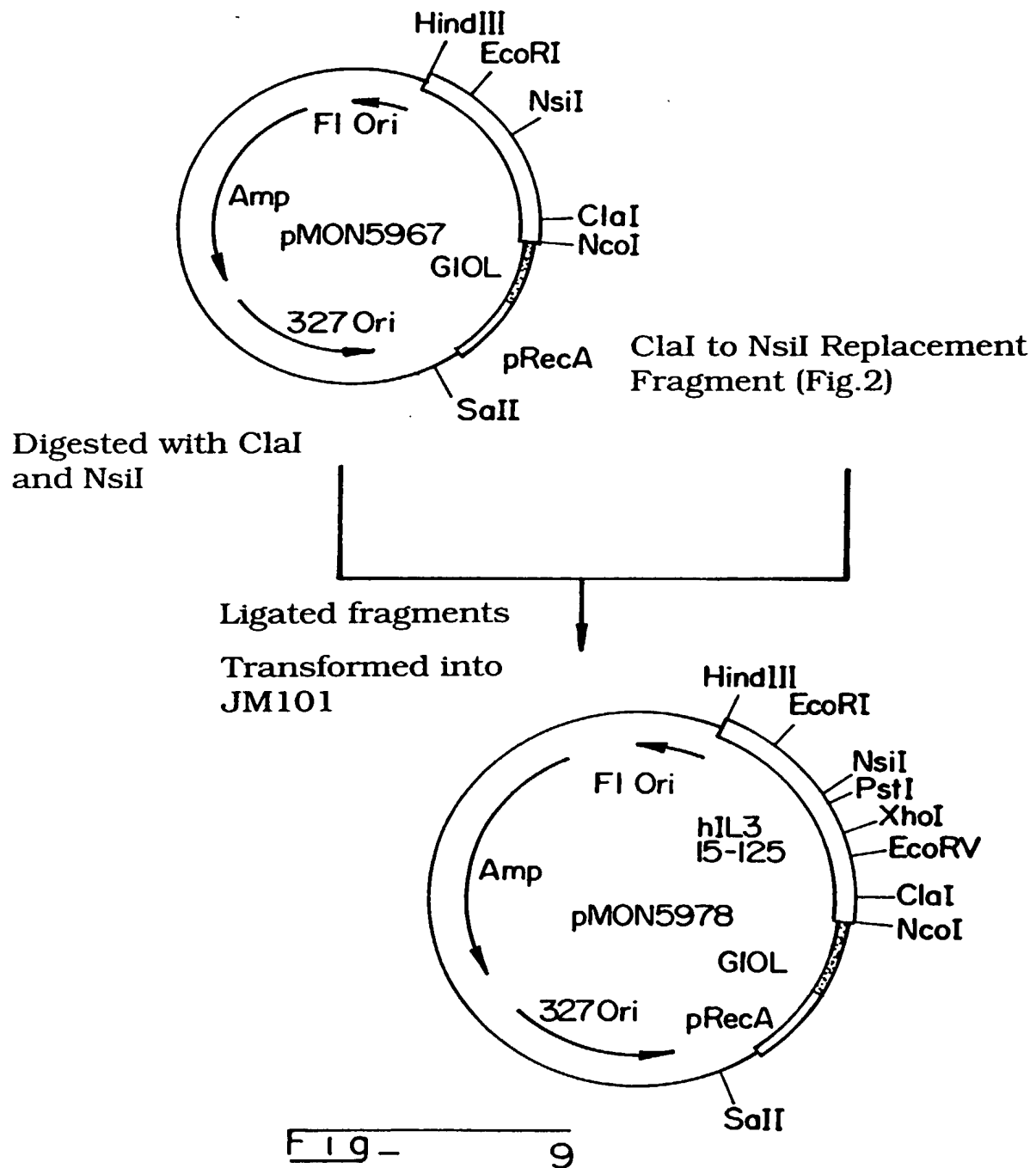
1           ATGATGATTACTCTGCGCAAACTTCCTCTGGCGGTGCCGTCGCAGCGGGCGTAATGTCT           60  
-----+-----+-----+-----+-----+-----+-----+  
TACTACTAATGAGACCGCGTTTGAAGGAGACCGCCAACGGCAGCGTCGCCCGCATTACAGA

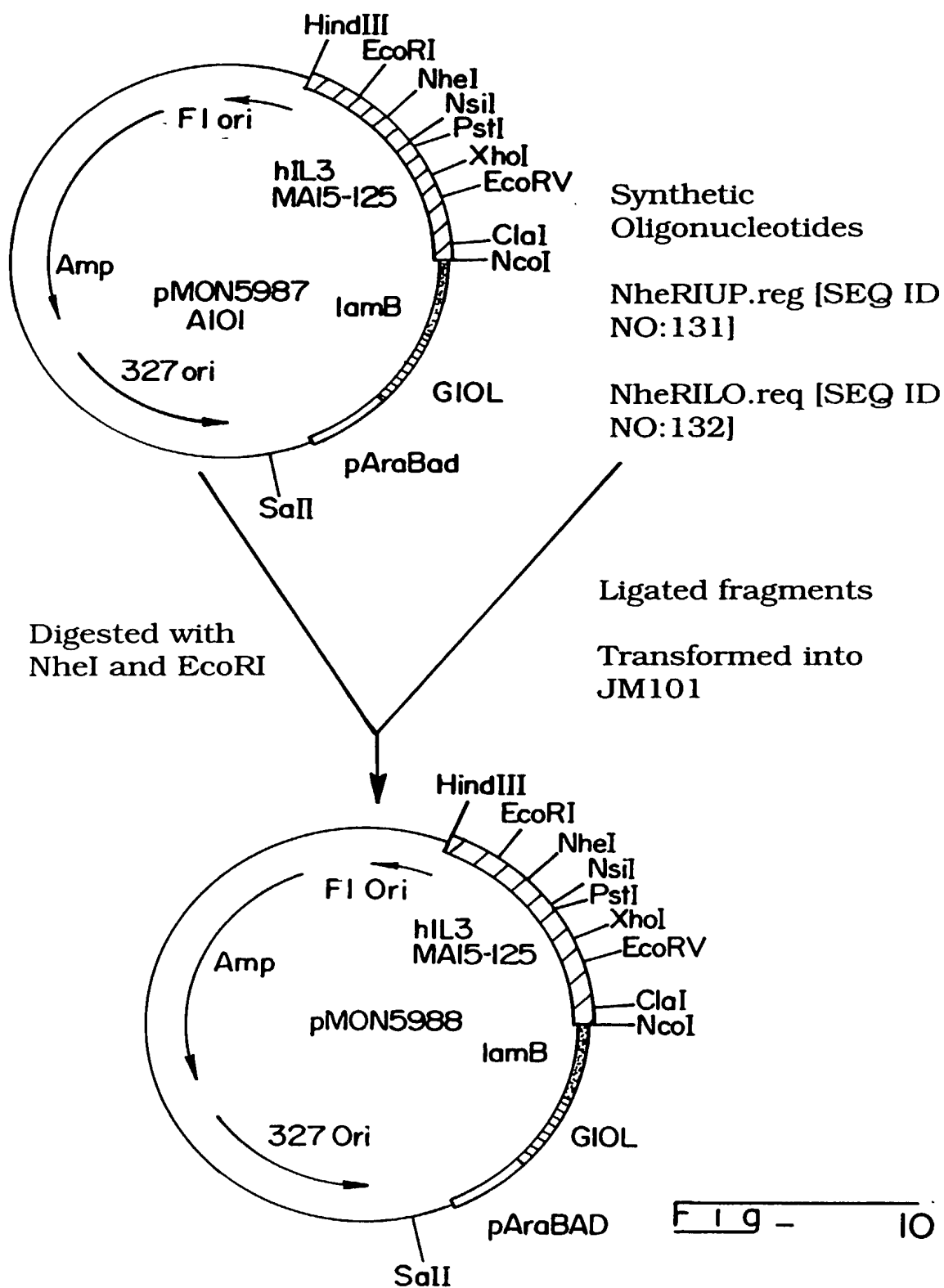
MetMetIleThrLeuArgLysLeuProLeuAlaValAlaAlaGlyValMetSer

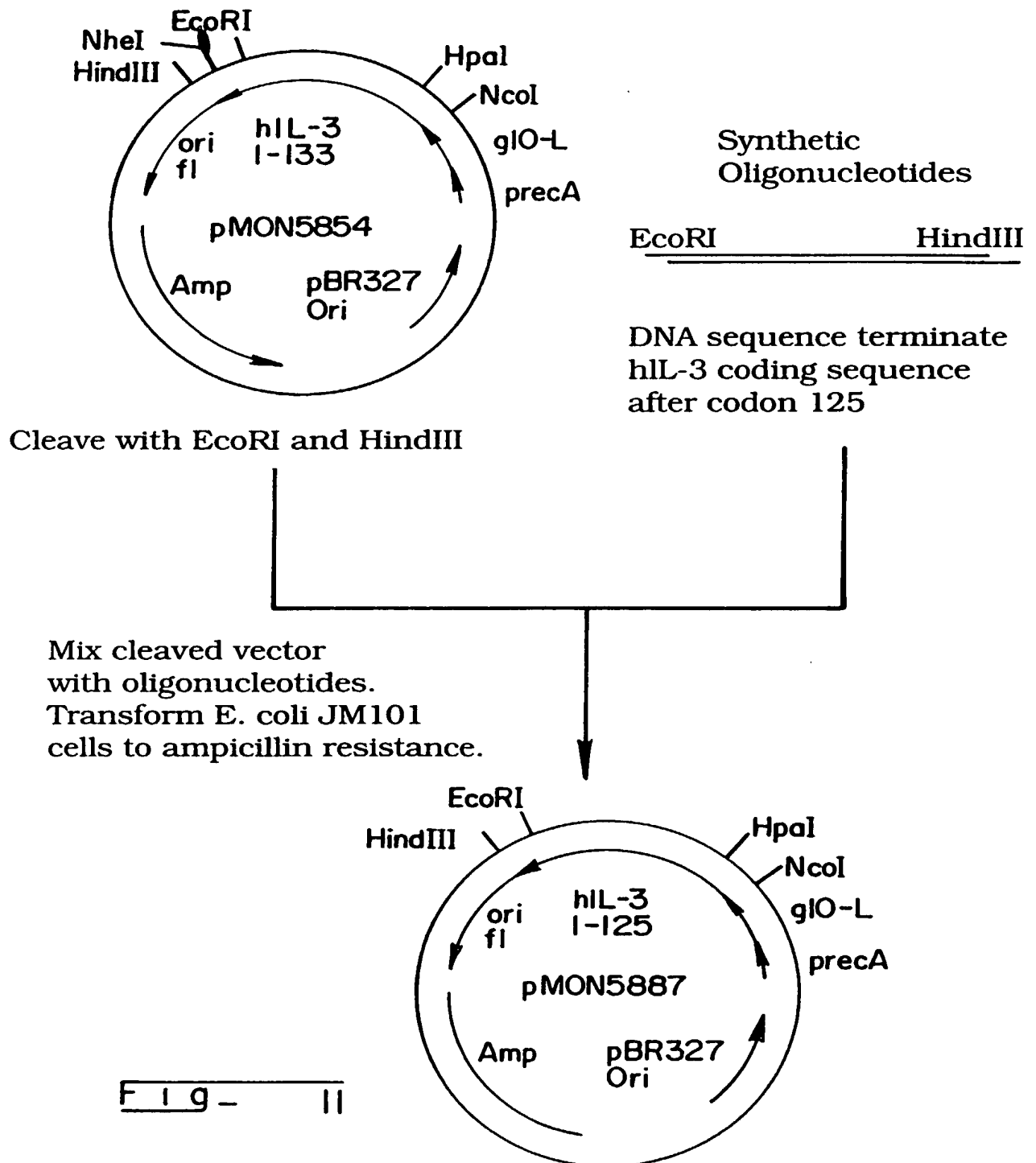
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GCTCAGGCCCATGGCTAACTGC           [SEQ ID NO: 149]  
61 -----+-----+-- 81  
CGAGTCCGGTACCGATTGACG           [SEQ ID NO: 150]  
  
AlaGlnAlaMetAlaAsnCys           [SEQ ID NO: 14]

lamB signal Peptide







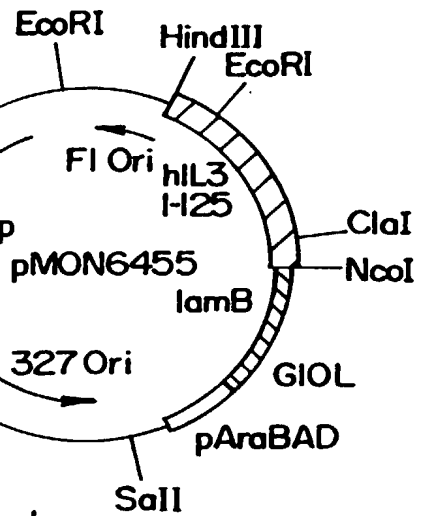
5' CATGGCTAACTGCTCTAACATGAT 3'  
SEQ ID NO:151

3' CGATTGACGAGATTGTACTAGC 5'  
SEQ ID NO:152

Annealed  
Oligonucleotides

Ligated fragments

Transformed into  
JM101



Digested with NcoI  
and ClaI

Gel purified 4263 bp  
fragment

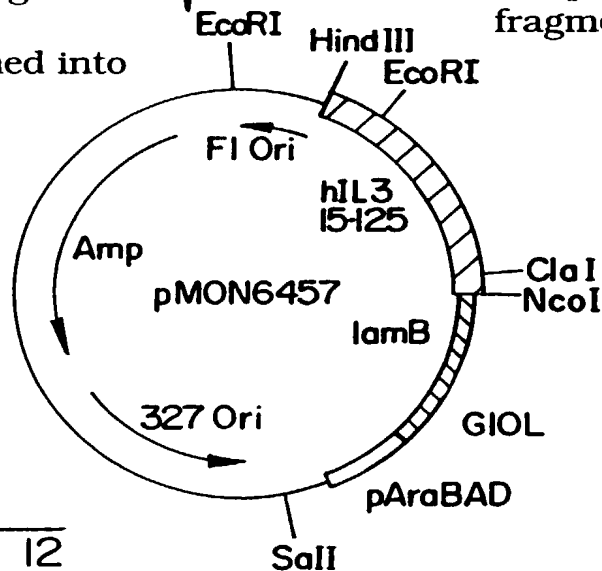
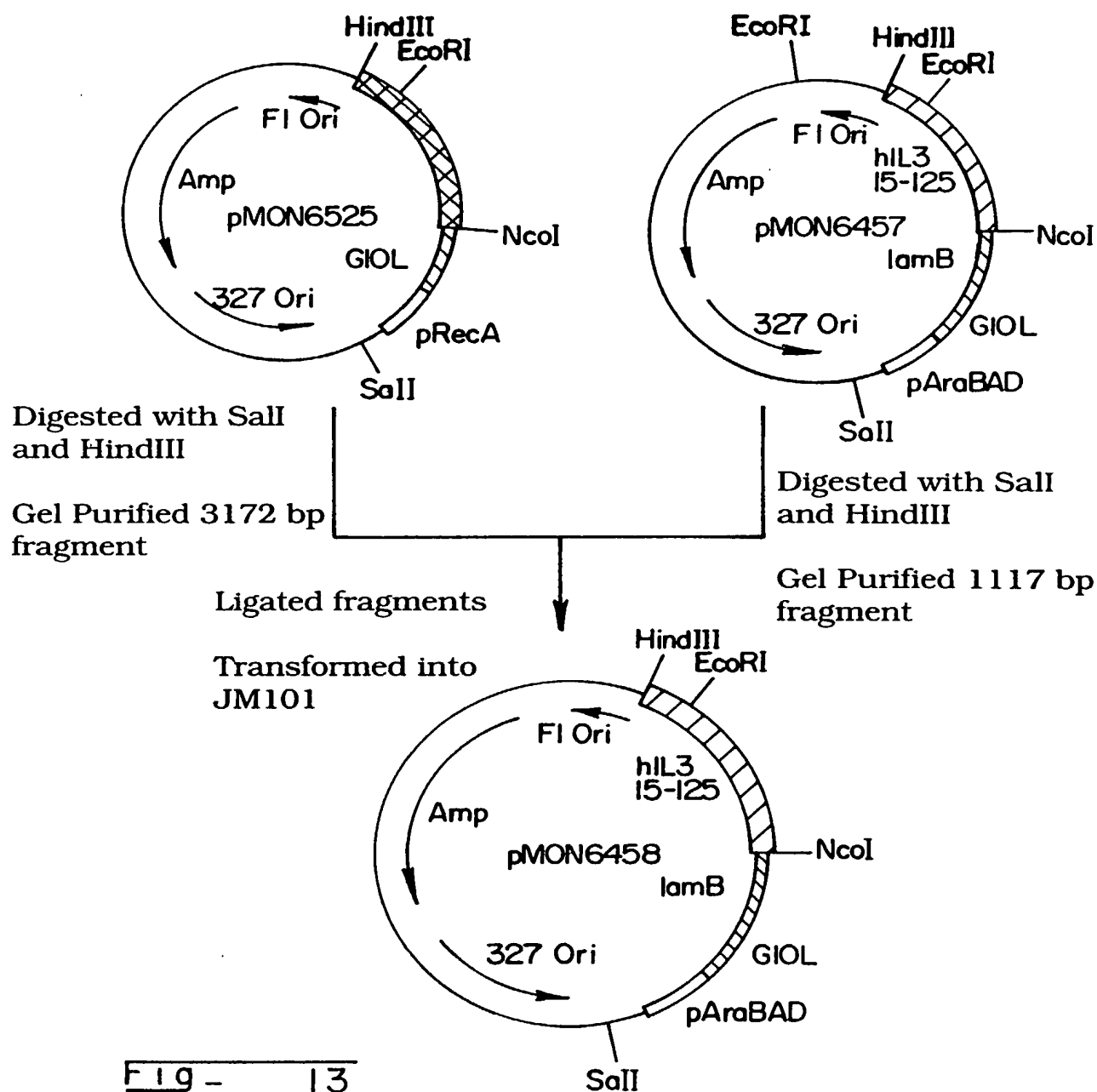


Fig - 12



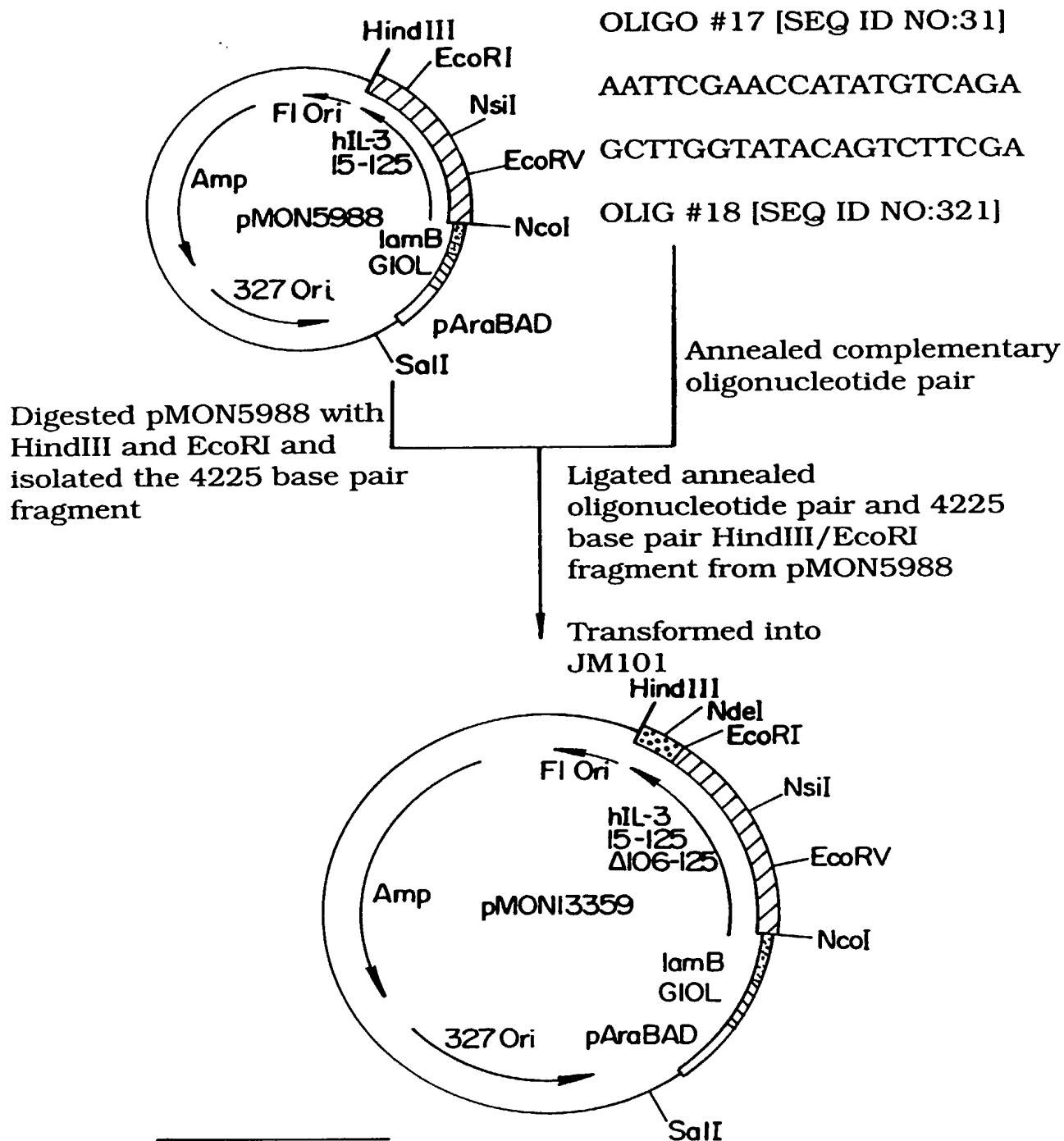
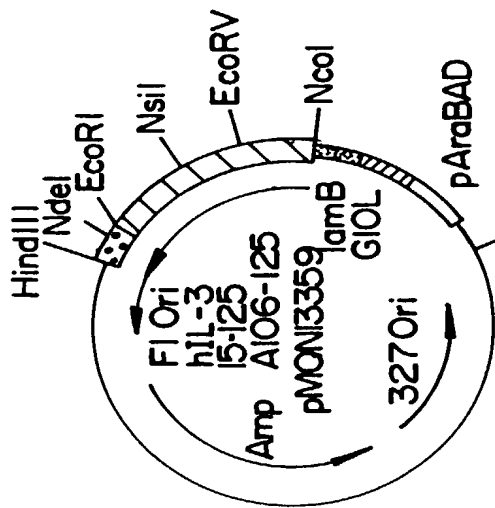


FIG - 14



Digested pMON13359 with HindIII and EcoRI and isolated the 4225 base pair fragment

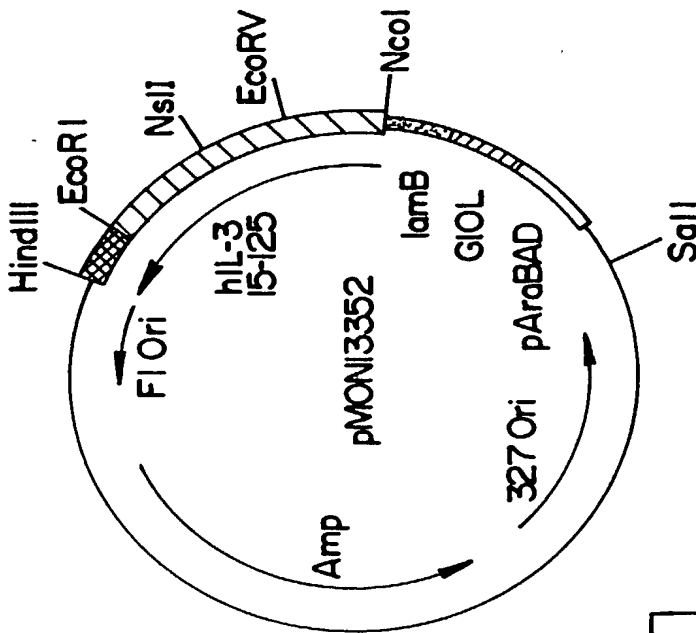
Ligated annealed oligonucleotide pairs and 4225 base pair HindIII/EcoRI fragment from pMON13359

Transformed into JM101

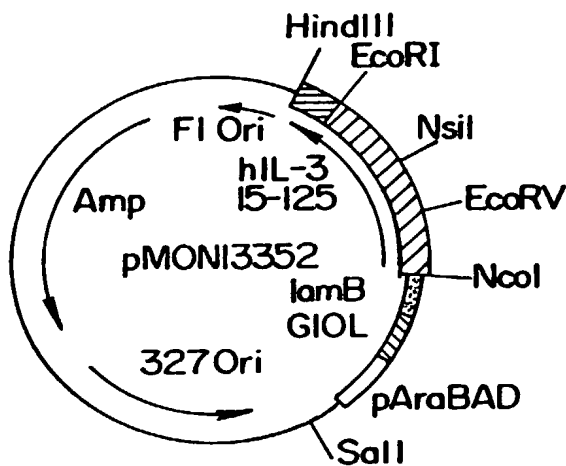
Annealed complementary oligonucleotide pairs

OLIGO #45 [SEQ ID NO:59]  
 5' AATCCCGGGAAGAACTGACGTTCTATCTGTT 3'  
 3' GGCCCTTTTGACTGCAAGATAGACCAAGGGAAGCTCG 5'  
 OLIGO #46 [SEQ ID NO:60]

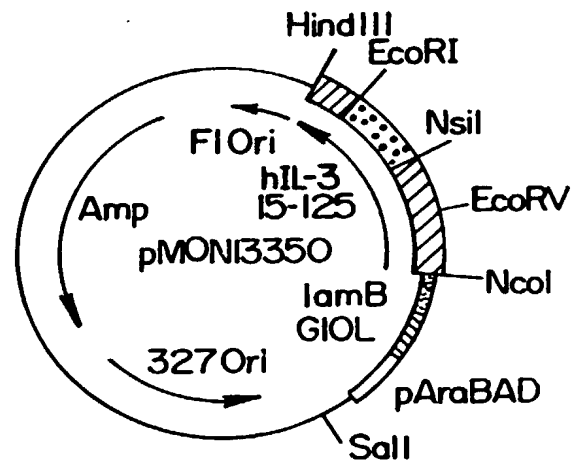
OLIGO #49 [SEQ ID NO:63]  
 5' TCCCTTGAGCAAGCGCAGGAACAACAGTAATA 3'  
 3' TTCGCGTCTCTGTTGTCATTATTCTGA 5'  
 OLIGO #50 [SEQ ID NO:64]



F 1 9 - 16



Digested pMONI3352 with  
NsiI and EcoRI and  
isolated the 4178 base pair  
fragment



Digested pMONI3350 with  
NsiI and EcoRI and  
isolated the 111 base pair  
fragment

Ligated fragments

Transformed into  
JM101

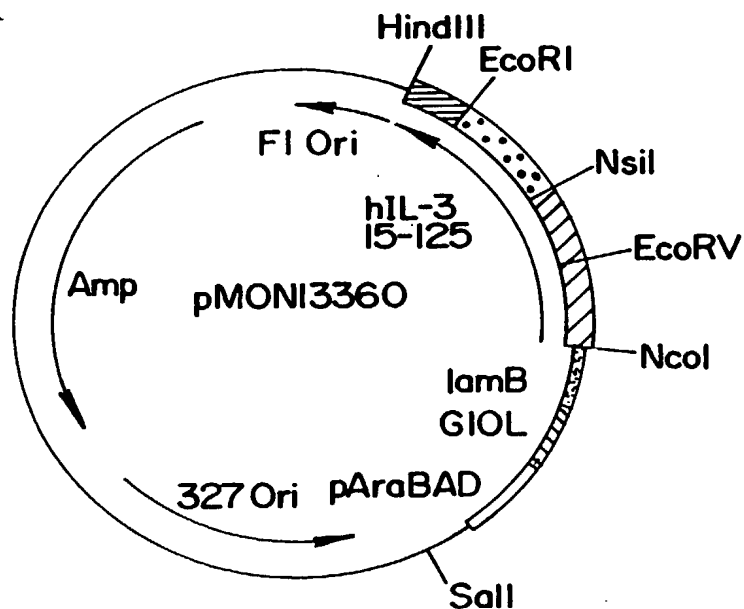
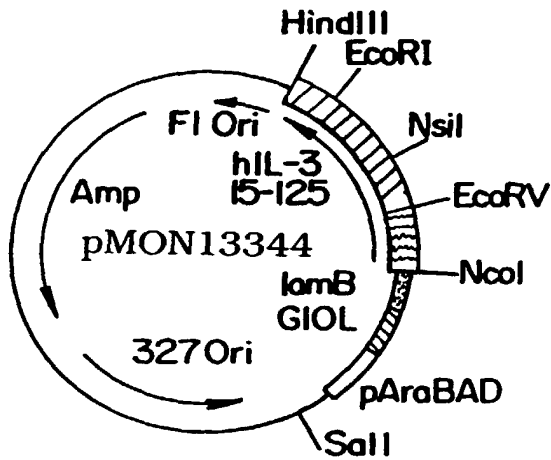
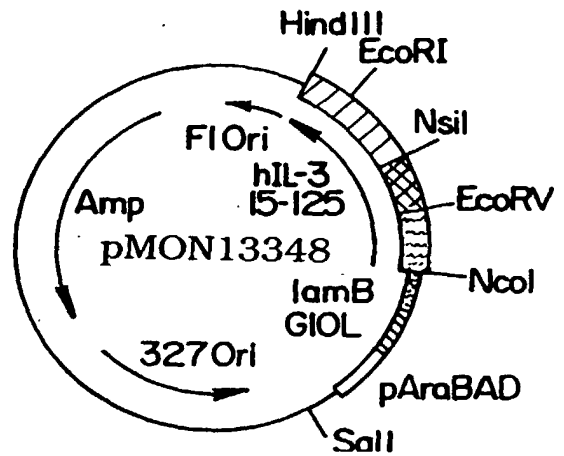


Fig - 17



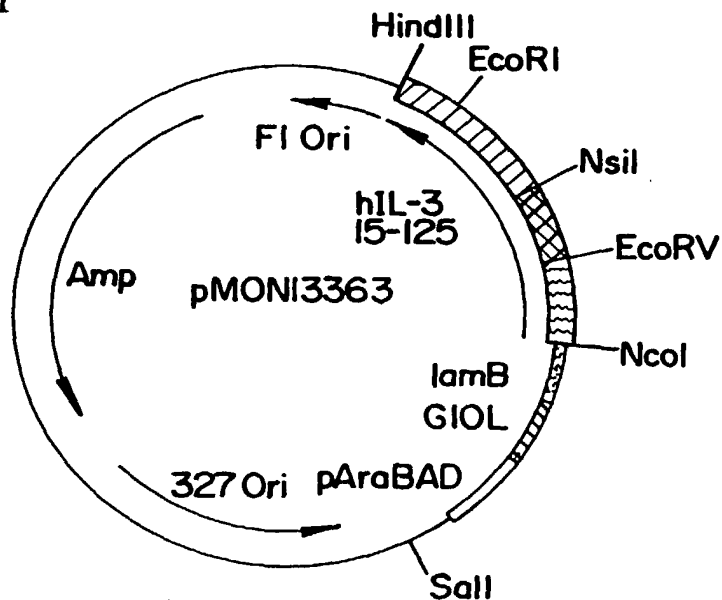
Digested pMON13344 with NsiI and EcoRV and isolated the 4218 base pair fragment



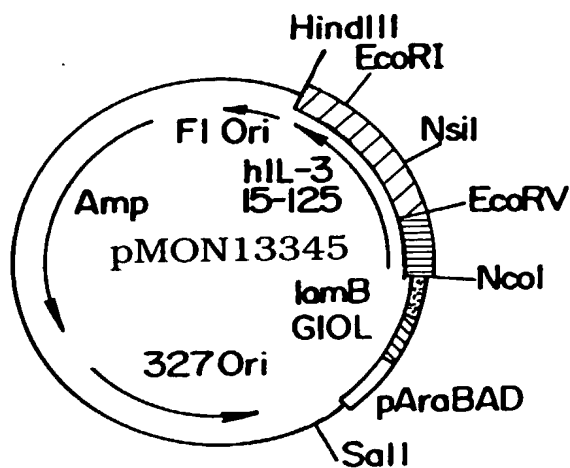
Digested pMON13348 with NsiI and EcoRV and isolated the 71 base pair fragment

Ligated fragments

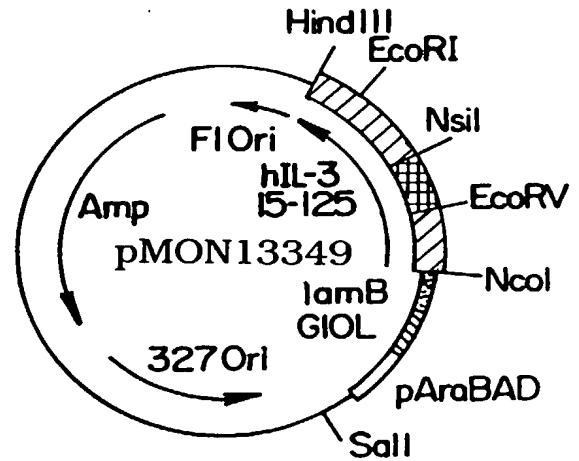
Transformed into JM101



F 19 - 18



Digested pMON13345 with  
NsiI and EcoRV and  
isolated the 4218 base pair  
fragment



Digested pMON13349 with  
NsiI and EcoRV and  
isolated the 71 base pair  
fragment

Ligated fragments

Transformed into  
JM101

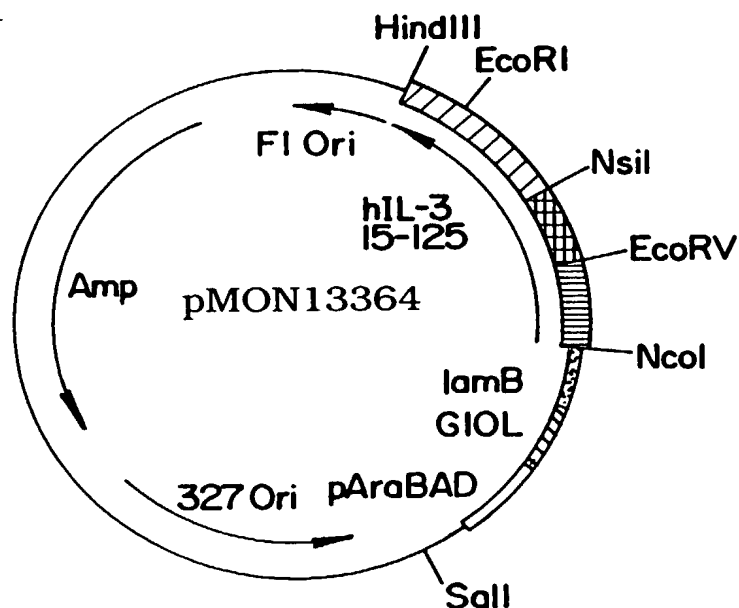
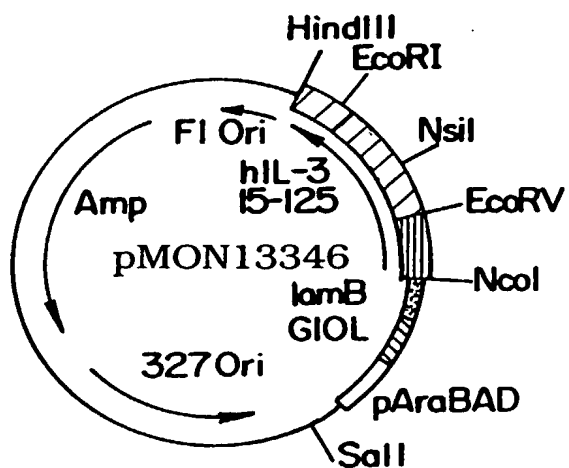
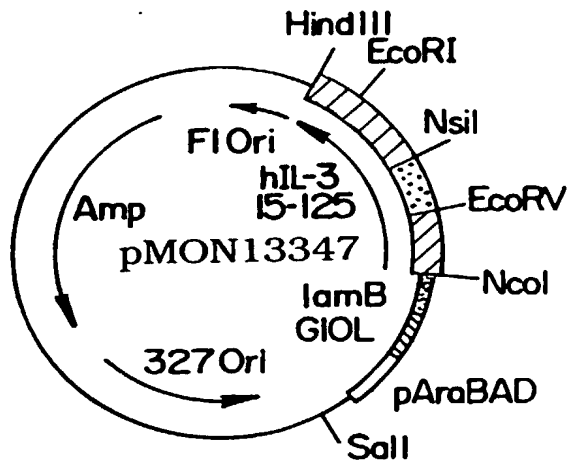


Fig - 19



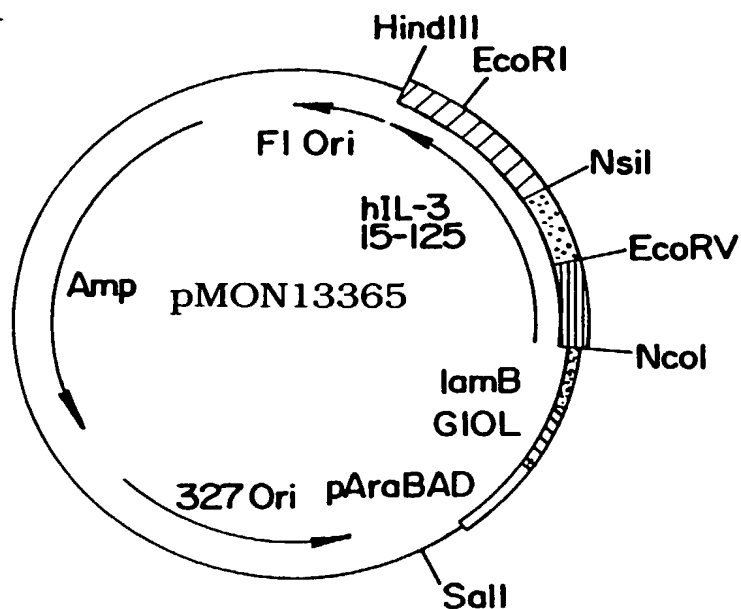
Digested pMON13346 with NsiI and EcoRV and isolated the 4218 base pair fragment

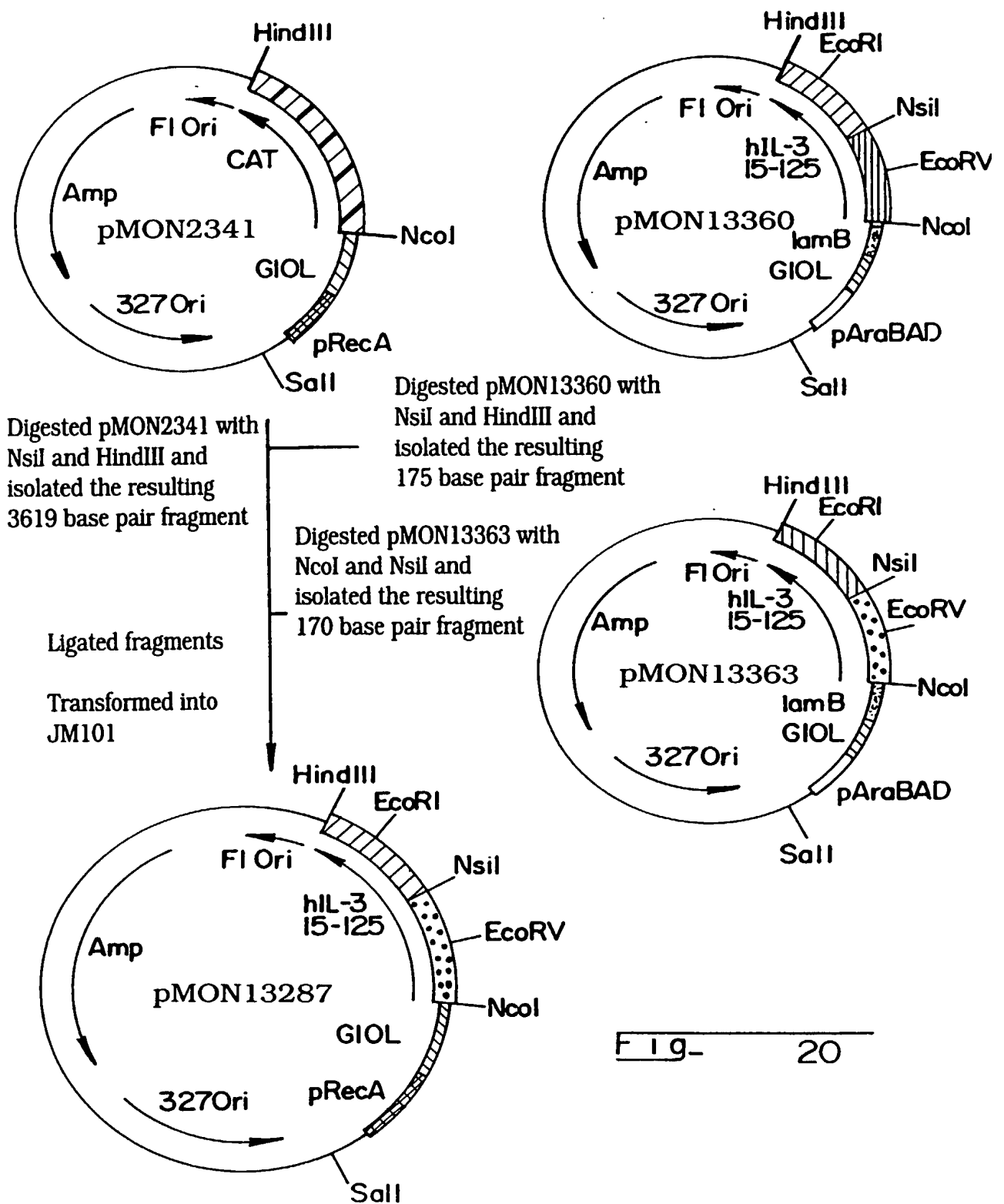


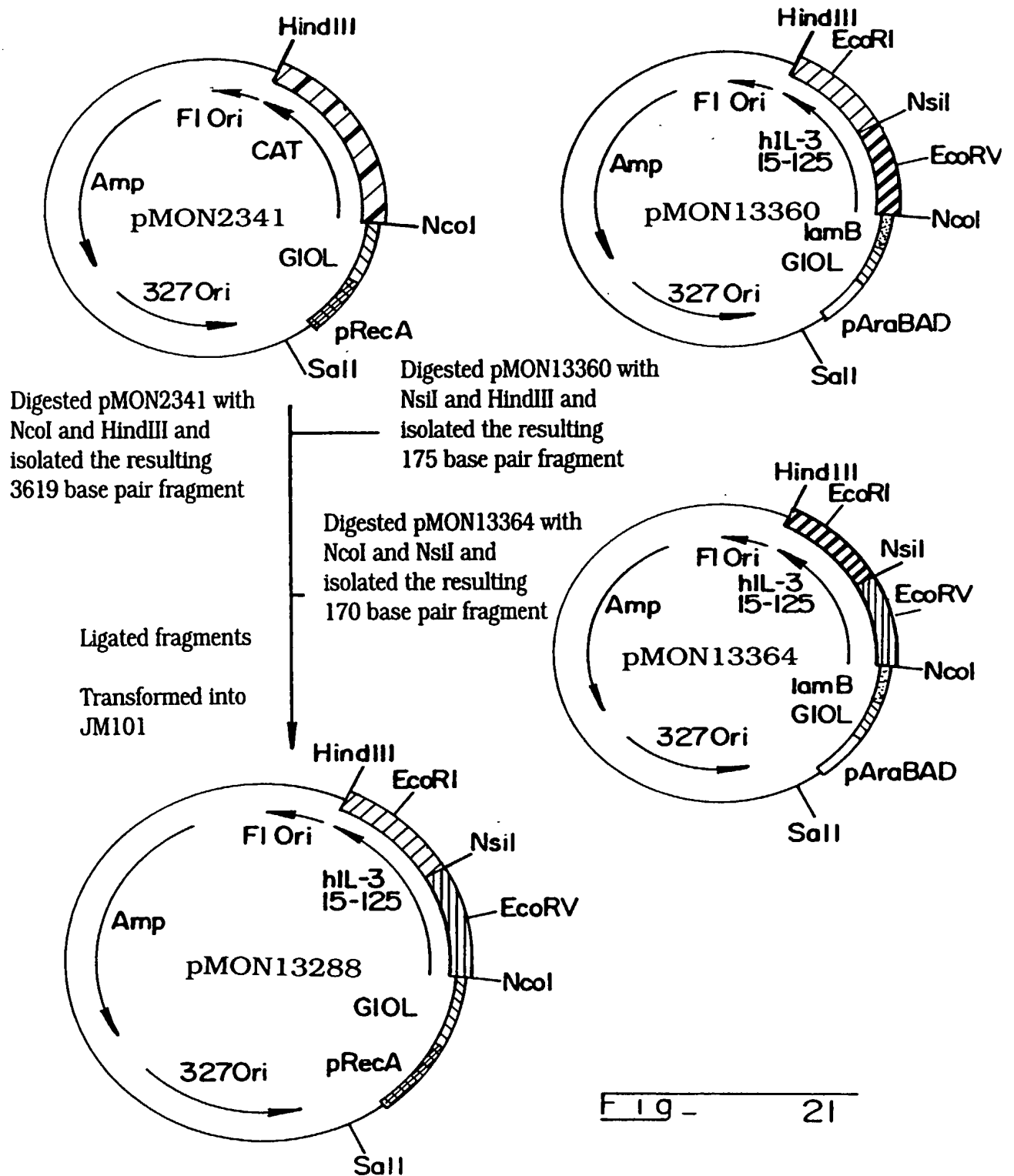
Digested pMON13347 with NsiI and EcoRV and isolated the 71 base pair fragment

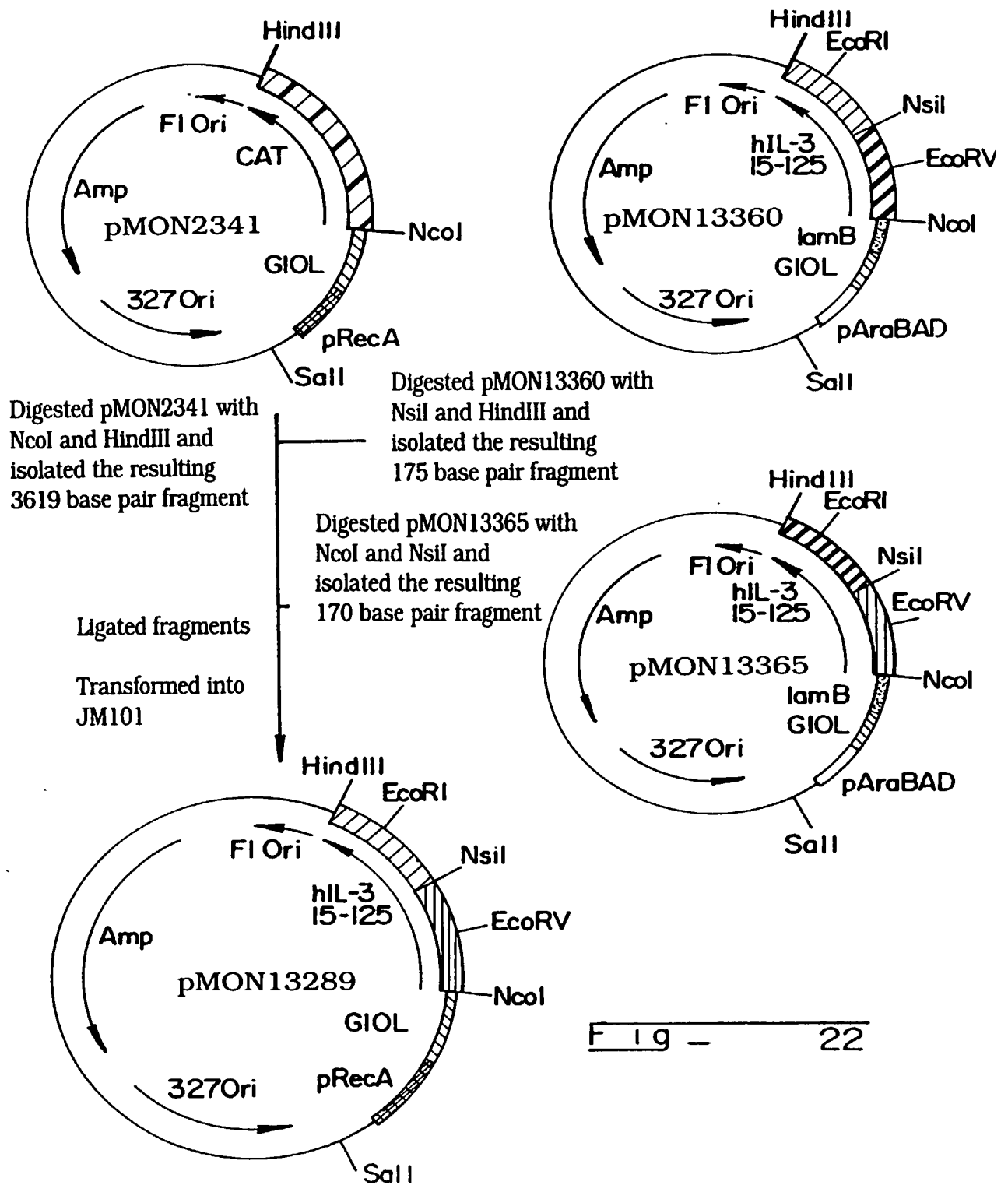
Ligated fragments

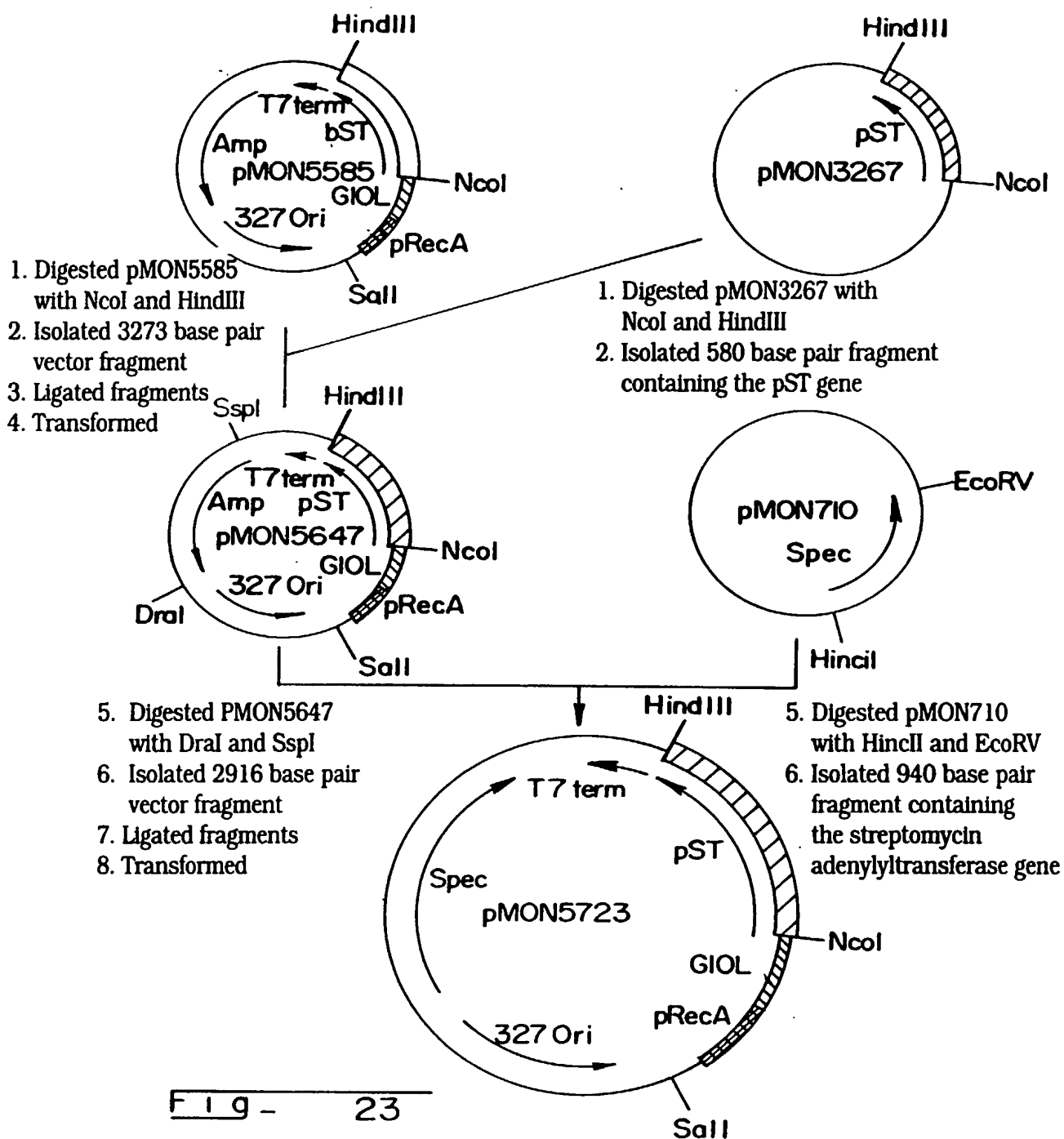
Transformed into JM101











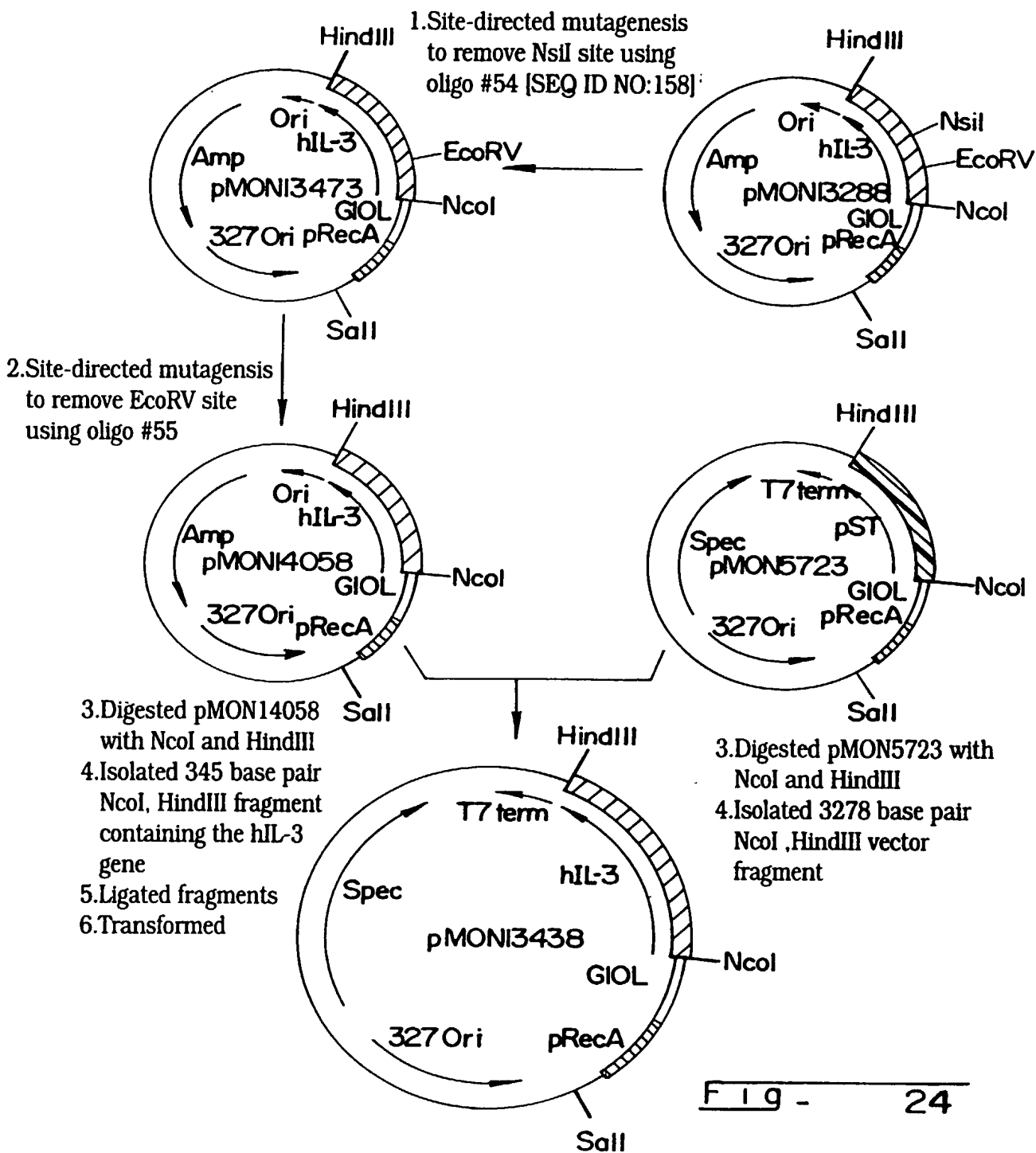


Fig - 24